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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,582	08/25/2003	Junichi Takeuchi	NEC F-11100 DIV	3591

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EXAMINER	
NGUYEN, LONG T	
ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 03/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/647,582	TAKEUCHI, JUNICHI	
	Examiner	Art Unit	
	Long Nguyen	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7-12,14,20,21,24 and 25* is/are allowed.

6)☒ Claim(s) *13,15-19,22,23 and 26-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/874,737.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/25/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/26/05 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 15, 18, 22, 23, 29 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 15, the recitation "wherein said second bias current is a constant current" on the last line of the claim is indefinite because it is inconsistent with what has been recited earlier in the claim, i.e., it is recited earlier in the claim that the second bias current is varying by a control circuit (so line 11-14, claim 15). Therefore, it is not clear how can a current can be varied, and also be constant. Clarification and/or appropriate correction is required.

With respect to claim 18, this claim is indefinite for the similar reason as discussed in claim 15 above.

With respect to claim 22, the recitation "wherein said third current source circuit provides a constant current" on the last line of the claim is indefinite because it is already recited that the

third bias current source circuit provides the third bias current, and the third bias current is varying by the control circuit (see lines 12-15 of claim 22), so it is not clear how the third current source circuit can also provides a constant current.

Also in claim 22, "wherein said control signal determines a third bias current, and once said third bias current is determined, said third bias current is constant" on the last 2 lines of the claim is indefinite because "a third bias current" in the above phrase is unclear antecedent basis since it is not known whether it is the same as "third bias current" recited earlier. Further, it is not know how the "third bias current" can also be constant since it is recited earlier that the third bias current is varying by the control circuit according to the control signal.

With respect to claim 23, the recitation "wherein said fourth current source circuit provides a constant current" on the last line of the claim is indefinite because it is already recited that the fourth bias current source circuit provides the fourth bias current, and the fourth bias current is varying by the control circuit (see lines 10-14 of claim 23), so it is not clear how the fourth current source circuit can also provides a constant current.

With respect to claim 29, the recitation "wherein said third current source circuit provides a constant current" on the last line of the claim is indefinite for the similar reason as discussed in claim 22 above..

With respect to claim 30, the recitation "wherein said fourth current source circuit provides a constant current" on the last line of the claim is indefinite for the similar reason as discussed in claim 23 above.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 13, 15, 16, 18, 19, 22, 23, 26, 29 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Hogeboom (USP 6,194,949).

With respect to claims 13, 15, 16, 18, 19, 22, 23, 26, 29 and 30, Figure 1 of the Hogeboom reference discloses a driver, which includes: a pair of push-pull circuits (PMOS 30 and NMOS 50, and PMOS 20 and NMOS 40) for driving a load circuit complementary (driving downstream circuitry at differential outputs 200 and 210); a first current source circuit (71) for providing a first bias current (Idc which is current of transistor 71) flown to the pair of the push-pull circuits; a second current source circuit (81) for having the first bias current (Idc which is the current of transistor 81) flown from the pair of the push-pull circuits; a third current source circuit (70) for providing capable of having a second bias current (Ida which is the current of transistor 70) flown to the pair of the push-pull circuits; a fourth current source circuit (80) capable of having the second bias current (Ida which is the current of transistor 80) flown from the pair of the push-pull circuits; and a control circuit (90, Figure 2) for varying the second bias current (Ida) flown by the third current circuit (70) and the second bias current (Ida) flown by the fourth current source circuit (80) according to a control signal (signal at node 220 in Figure 2). Note that the control signal (220, Figure 2) is independent of drain voltages of the first to fourth

current source circuits (signal 220 in Figure 2 is independent of drain voltages of transistors 70, 71, 80 and 81 in Figure 1) and independent of an input signal (signal 220 in Figure 2 is independent of input signal of the push-pull circuits (30 and 50, 40 and 60); and Figure 1 clearly shows each of the pair of push-pull circuits comprises at least two conductive types of transistors. Also note that, in claims 19, 22, 23, 29 and 30, the first bias current (Idc which is the current of transistor 71), a second bias current (Idc which is the current of transistor 81), a third bias current (Ida which is the current of transistor 70), and a fourth bias current (Ida which is the current of transistor 80). Further, once the control signal (220, Figure 2) is fixed then the bias voltages BN and BP must be fixed and thus the currents of transistors 70 and 80 must be constant.

6. Claims 17, 27 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by DeClue et al. (USP 6,281,715).

With respect to claims 17, 27 and 28, Figure 2 of the DeClue et al. reference discloses a driver, which includes: a pair of push-pull circuits (M21-M22, M23-M24) for driving a load circuit complementary (RL or driving downstream circuitry at differential outputs OUT and OUTB); a first current source circuit (I2) for providing a first bias current (ID1) flown to the pair of the push-pull circuits; a second current source circuit (R21) for having the first bias current (the current across R21) flown from the pair of the push-pull circuits; a third current source circuit (207, M28, M27) for providing capable of having a second bias current (ID2) flown to the pair of the push-pull circuits; a fourth current source circuit (M25, M26) capable of having the second bias current (current across M25-M26) flown from the pair of the push-pull circuits; and a control circuit (IV2-IV5, XNOR) for varying the second bias current (ID2) flown by the

third current circuit and by the fourth current source circuit according to a control signal (IN). Note that each of the pair of push-pull circuits (M21-M22, M23-M24) comprises at least two conductive types of transistors (one for pulling-up, and another one for pulling-down); and it is clearly that the current ID1 and the current across resistor R21 are constant currents.

Allowable Subject Matter

7. Claims 7-12, 14, 20, 21, 24 and 25 are allowed.

Response to Arguments

8. Applicant's arguments filed 1/26/05 have been fully considered but they are not persuasive.

Applicant argues that the circuit 90 in Figure 2 of Hogeboom does not show a control signal for controlling the third current source circuit and the fourth current source circuit. However, this argument is not persuasive because Hogeboom shows that the control circuit (90) controlling the third and fourth current sources circuits according to the control signal (signal at node 220 in Figure 2). Note that the circuit 90 in Figure 2 providing biasing signals BP and BN according to signal at node 220 (i.e., BP and BN depends on signal at node 220), and the biasing signals BP and BN are used to control the transistors 70 and 80, respectively, which are the third and fourth current source circuits, respectively. Note that, as discussed above, the third current source circuit is transistor 70 in Figure 1 and the fourth current source circuit is transistor 80 in Figure 1 (the first and second current source circuits are transistors 71 and 81, respectively).

Applicant also argues that the DeClue et al. reference shows that each push-pull circuit comprises the same conductive types of transistors and does not comprises at least two conductive types of transistors. However, this argument is not persuasive because the DeClue et

al. reference shows each push-pull circuit comprises two conductive types of transistors (one for pull-up and another one for pull-down) as discussed above. Note that the claim does not specifically require the two conductive types of transistors must be different from each other.

With respect to the argument regarding the constant currents, it is seen that once the control signal (signal at node 220) in Figure 2 of Hogeboom is fixed (constant) then the biasing signals BP and BN will be fixed and thus the currents across transistors 70 (third current source circuit) and 80 (fourth current source circuit) must be constant, and the current ID1 (first current source circuit ID1) and the current across R21 (second current source circuit R21) in Figure 2 of DeClue et al. are constant currents.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directly to Examiner Long Nguyen whose telephone number is (571) 272-1753. The Examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan, can be reached at (571) 272-1740. The fax number for this group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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